CLAIMS

1. A system for mounting components on a substrate, the components being provided on a carrier tape carrying components positioned in sequence and covered by a cover, the carrier tape being wound on a carrier tape reel, comprising

a component mounting machine for picking components from said carrier tape and placing them on a substrate,

a component tape magazine arranged to be loaded into said component mounting machine, the magazine comprising means for reception of at least one carrier tape reel, feeding means arranged for engagement with holes provided on the carrier tape of each of said at least one carrier tape reel for feeding the carrier tape towards a picking position in said component mounting machine, and first locking means for enabling ready attachment and detachment of at least one tape guide attached to said at least one carrier tape reel into the component tape magazine, and

at least one tape guide for guiding said carrier tape, the tape guide comprising second locking means for interaction with said first locking means, carrier tape retaining means for preventing accidental removal of the carrier tape from the tape guide when the tape guide is located away from the component mounting machine, and exposure means for exposing the components at a picking position.

2. A system for mounting components on a substrate, the components being provided on a carrier tape carrying components positioned in sequence and covered by a cover, the carrier tape being wound on a carrier tape reel, comprising

a component mounting machine for picking components from said carrier tape and placing them on a substrate, the machine comprising means for reception of at least one carrier tape reel, feeding means arranged for engagement with holes provided on the carrier tape of each of said at least one carrier tape reel for feeding the carrier tape towards a picking position in the machine, and first locking means for enabling ready attachment and detachment of at least one tape guide attached to said at least one carrier tape reel into the machine, and

at least one tape guide for guiding said carrier tape, the tape guide comprising second locking means for interaction with said first locking means, carrier tape retaining means for

preventing accidental removal of the carrier tape from the tape guide and for facilitating storage of the component tape and the tape reel with the tape guide, and exposure means for exposing the components at a picking position.

3. The system according to claim 1, wherein said first and second locking means are arranged for mutual interaction in a snap-in arrangement.

4. The system according to claim 1, wherein said second locking means comprises a pair of locking elements provided spaced apart along the length of the tape guide, and wherein a portion thereof provided between said pair of locking elements is arranged for reception of said feeding means for engagement with the carrier tape.

5. The system according to claim 4, wherein said locking elements are disposed at opposite ends of the tape guide.

6. The system according to claim 1, wherein the carrier tape retaining means is arranged to retain the carrier tape by means of friction.

7. The system according to claim 1, wherein the exposure means constitutes part of the carrier tape retaining means.

8. The system according to claim 1, wherein the carrier tape retaining means comprises a flexible support spring and a counter support, said flexible support spring and counter support being arranged for insertion of the carrier tape there-between.

9. The system according to claim 1, wherein the exposure means comprises separating means for separating and lifting a lateral portion of the cover from the carrier tape, leaving the remaining portion of the cover at least partially attached to the carrier tape, and for bringing the lifted portion of the cover aside.

10. The system according to claim 1, wherein the tape guide further comprises holding means for enabling attachment of the tape guide to a carrier tape reel.

11. A component tape magazine for providing components to a component mounting machine, the components being provided on a carrier tape carrying components positioned in sequence and covered by a cover, the carrier tape being wound on a carrier tape reel, wherein the component tape magazine is arranged to be loaded into a component mounting machine, the magazine comprising

means for reception of at least one carrier tape reel,

feeding means arranged for engagement with holes provided on the carrier tape of each of said at least one carrier tape reel for feeding the carrier tape towards a picking position in said component mounting machine, and

first locking means for enabling ready attachment and detachment of at least one tape guide attached to said at least one carrier tape reel into the component tape magazine by interacting with second locking means provided on the tape guide.

12. The magazine according to claim 11, wherein said first locking means is arranged for interaction in a snap-in arrangement with said second locking means.

13. The magazine according to claim 11, wherein said first locking means comprises a pair of locking elements provided spaced apart, and wherein said feeding means is provided there-between.

14. A tape guide for guiding a carrier tape in a component mounting machine, the carrier tape being wound on a carrier tape reel and carrying components positioned in sequence and covered by a cover, the tape guide being arranged for ready attachment and detachment into a tape magazine or a component mounting machine having first locking means, the tape guide comprising

second locking means for interaction with said first locking means for enabling said ready attachment and detachment,

carrier tape retaining means for preventing accidental removal of the carrier tape from the tape guide when the tape guide is located away from the component mounting machine, and

exposure means for exposing the components at a picking position,

wherein the tape guide is arranged for allowing feeding means provided in the magazine or the component mounting machine to engage with the carrier tape for feeding the carrier tape towards a picking position.

15. The tape guide according to claim 14, wherein said second locking means is arranged for interaction in a snap-in arrangement with said first locking means.

16. The tape guide according to claim 14, wherein said second locking means comprises a pair of locking elements provided spaced apart along the length of the tape guide, and wherein a portion thereof provided between said pair of locking elements is arranged for reception of said feeding means for engagement with the carrier tape.

17. The tape guide according to claim 16, wherein said portion is provided with an opening for allowing said feeding means to engage with the carrier tape through the opening.

18. The tape guide according to claim 16, wherein said locking elements are disposed at opposite ends of the tape guide.

19. The tape guide according to claim 14, wherein the carrier tape retaining means is arranged to retain the carrier tape by means of friction.

20. The tape guide according to claim 14, wherein the exposure means constitutes part of the carrier tape retaining means.

21. The tape guide according to claim 14, wherein the carrier tape retaining means comprises a flexible support spring and a counter support, said flexible support spring and counter support being arranged for insertion of the carrier tape there-between.

22. The tape guide according to claim 14, wherein the exposure means comprises separating means for separating and lifting a lateral portion of the cover from the carrier tape, leaving the remaining portion of the cover at least partially attached to the carrier tape, and for bringing the lifted portion of the cover aside.

23. The tape guide according to claim 14, further comprising holding means for enabling attachment of the tape guide to a carrier tape reel.

24. A tape guide for guiding a carrier tape components to a component mounting machine, the carrier tape carrying components positioned in sequence and covered by a cover, the carrier tape being wound on a carrier tape reel, wherein the tape guide is formed by an elongated body comprising

proximal and distal locking elements for interaction with corresponding locking elements in a tape magazine or a component mounting machine for enabling ready attachment and detachment of a tape guide into the tape magazine or a component mounting machine, the proximal and distal locking means being provided spaced apart along the length of the elongated body,

an intermediate portion adapted for receiving feeding means for engagement with and feeding said carrier tape towards a picking position, wherein said intermediate portion is located between the proximal locking means and the distal locking means,

carrier tape retaining means for preventing accidental removal of the carrier tape from the tape guide when the tape guide is located away from the component mounting machine, and

exposure means for exposing the components at a picking position.

25. An assembly for use at a component mounting machine, the assembly comprising

a component tape reel provided with a component tape wound thereon, the component tape comprising a carrier tape carrying components positioned in sequence, and a cover covering the components, and

a tape guide for guiding the component tape to a component mounting machine, the tape guide comprising locking means for interaction with corresponding locking means in a tape magazine or a component mounting machine, for enabling ready attachment and detachment of a tape guide into the tape magazine or the component mounting machine, component tape retaining means, and exposure means for exposing the components at a picking position,

wherein the tape guide is loosely attached to the component tape reel via said component tape by means of said carrier tape retaining means, for preventing accidental removal of the component tape from the tape guide when the tape guide is located away from

the component mounting machine, and for facilitating storage of the component tape and the reel with the tape guide.

26. The assembly as claimed in claim 25, wherein the tape guide is provided with holding means enabling direct attachment of the tape guide onto the component tape reel.

27. A system for mounting components on a substrate, the components being provided on a carrier tape carrying components positioned in sequence and covered by a cover, the carrier tape being wound on a carrier tape reel, comprising:

a component mounting machine for picking components from said carrier tape and placing them on a substrate;

a component tape magazine arranged to be loaded into said component mounting machine, the magazine comprising a receptor for receiving at least one carrier tape reel, a feeding mechanism arranged for engagement with holes provided on the carrier tape of each of said at least one carrier tape reel for feeding the carrier tape towards a picking position in said component mounting machine, and a first lock for enabling ready attachment and detachment of at least one tape guide attached to said at least one carrier tape reel into the component tape magazine; and

at least one tape guide for guiding said carrier tape, the tape guide comprising a second lock for interaction with said first lock, a carrier tape retainer for preventing accidental removal of the carrier tape from the tape guide when the tape guide is located away from the component mounting machine, and an exposure mechanism for exposing the components at a picking position.

28. A system for mounting components on a substrate, the components being provided on a carrier tape carrying components positioned in sequence and covered by a cover, the carrier tape being wound on a carrier tape reel, comprising:

a component mounting machine for picking components from said carrier tape and placing them on a substrate, the machine comprising a receptor for receiving at least one carrier tape reel, a feeding mechanism arranged for engagement with holes provided on the carrier tape of each of said at least one carrier tape reel for feeding the carrier tape towards a picking

position in the machine, and a first lock for enabling ready attachment and detachment of at least one tape guide attached to said at least one carrier tape reel into the machine; and

at least one tape guide for guiding said carrier tape, the tape guide comprising a second lock for interaction with said first lock, a carrier tape retainer for preventing accidental removal of the carrier tape from the tape guide and for facilitating storage of the component tape and the tape reel with the tape guide, and an exposure mechanism for exposing the components at a picking position.

29. The system according to claim 27, wherein said first and said second locks are arranged for mutual interaction in a snap-in arrangement.

30. The system according to claim 27, wherein said second lock comprises a pair of locking elements provided spaced apart along the length of the tape guide, and wherein a portion thereof provided between said pair of locking elements is arranged for reception of said feeding mechanism for engagement with the carrier tape.

31. The system according to claim 30, wherein said locking elements are disposed at opposite ends of the tape guide.

32. The system according to claim 27, wherein the carrier tape retainer is arranged to retain the carrier tape by means of friction.

33. The system according to claim 27, wherein the exposure mechanism constitutes part of the carrier tape retainer.

34. The system according to claim 27, wherein the carrier tape retainer comprises a flexible support spring and a counter support, said flexible support spring and counter support being arranged for insertion of the carrier tape there-between.

35. The system according to claim 27, wherein the exposure mechanism comprises a separater for separating and lifting a lateral portion of the cover from the carrier tape, leaving

the remaining portion of the cover at least partially attached to the carrier tape, and for bringing the lifted portion of the cover aside.

36. The system according to claim 27, wherein the tape guide further comprises a holder for enabling attachment of the tape guide to a carrier tape reel.

37. A component tape magazine for providing components to a component mounting machine, the components being provided on a carrier tape carrying components positioned in sequence and covered by a cover, the carrier tape being wound on a carrier tape reel, wherein the component tape magazine is arranged to be loaded into a component mounting machine, the magazine comprising:

a receptor for receiving at least one carrier tape reel,

a feeding mechanism arranged for engagement with holes provided on the carrier tape of each of said at least one carrier tape reel for feeding the carrier tape towards a picking position in said component mounting machine; and

a first lock for enabling ready attachment and detachment of at least one tape guide attached to said at least one carrier tape reel into the component tape magazine by interacting with a second lock provided on the tape guide.

38. The magazine according to claim 37, wherein said first lock is arranged for interaction in a snap-in arrangement with said second lock.

39. The magazine according to claim 37, wherein said first lock comprises a pair of locking elements provided spaced apart, and wherein said feeding mechanism is provided there-between.

40. A tape guide for guiding a carrier tape in a component mounting machine, the carrier tape being wound on a carrier tape reel and carrying components positioned in sequence and covered by a cover, the tape guide being arranged for ready attachment and detachment into a tape magazine or a component mounting machine having a first lock, the tape guide comprising:

a second lock for interaction with said first lock for enabling said ready attachment and detachment;

a carrier tape retainer for preventing accidental removal of the carrier tape from the tape guide when the tape guide is located away from the component mounting machine; and

an exposure mechanism for exposing the components at a picking position,

wherein the tape guide is arranged for allowing a feeding mechanism provided in the magazine or the component mounting machine to engage with the carrier tape for feeding the carrier tape towards a picking position.

41. The tape guide according to claim 40, wherein said second lock is arranged for interaction in a snap-in arrangement with said first lock.

42. The tape guide according to claim 40, wherein said second lock comprises a pair of locking elements provided spaced apart along the length of the tape guide, and wherein a portion thereof provided between said pair of locking elements is arranged for reception of said feeding mechanism for engagement with the carrier tape.

43 The tape guide according to claim 42 wherein said portion is provided with an opening for allowing said feeding mechanism to engage with the carrier tape through the opening.

44. The tape guide according to claim 42 wherein said locking elements are disposed at opposite ends of the tape guide.

45. The tape guide according to claim 40, wherein the carrier tape retainer is arranged to retain the carrier tape by means of friction.

46. The tape guide according to claim 40, wherein the exposure mechanism constitutes part of the carrier tape retainer.

47. The tape guide according to claim 40, wherein the carrier tape retainer comprises a flexible support spring and a counter support, said flexible support spring and said counter support being arranged for insertion of the carrier tape there-between.

48. The tape guide according to claim 40, wherein the exposure mechanism comprises a separater for separating and lifting a lateral portion of the cover from the carrier tape, leaving the remaining portion of the cover at least partially attached to the carrier tape, and for bringing the lifted portion of the cover aside.

49. The tape guide according to claim 40, further comprising a holder for enabling attachment of the tape guide to a carrier tape reel.

50. A tape guide for guiding a carrier tape components to a component mounting machine, the carrier tape carrying components positioned in sequence and covered by a cover, the carrier tape being wound on a carrier tape reel, wherein the tape guide is formed by an elongated body comprising:

proximal and distal locking elements for interaction with corresponding locking elements in a tape magazine or a component mounting machine for enabling ready attachment and detachment of a tape guide into the tape magazine or the component mounting machine, the proximal and distal locking elements being provided spaced apart along the length of the elongated body;

an intermediate portion adapted for receiving a feeding mechanism for engagement with and feeding said carrier tape towards a picking position, wherein said intermediate portion is located between the proximal locking element and the distal locking element;

a carrier tape retainer for preventing accidental removal of the carrier tape from the tape guide when the tape guide is located away from the component mounting machine; and

an exposure mechanism for exposing the components at a picking position.

51. An assembly for use at a component mounting machine, the assembly comprising:

a component tape reel provided with a component tape wound thereon, the component tape comprising a carrier tape carrying components positioned in sequence, and a cover covering the components; and

a tape guide for guiding the component tape to a component mounting machine, the tape guide comprising a lock for interaction with a corresponding lockin a tape magazine or a component mounting machine, for enabling ready attachment and detachment of a tape guide into the tape magazine or the component mounting machine, a component tape retainer, and an exposure mechanism for exposing the components at a picking position,

wherein the tape guide is loosely attached to the component tape reel via said component tape by said carrier tape retainer, for preventing accidental removal of the component tape from the tape guide when the tape guide is located away from the component mounting machine, and for facilitating storage of the component tape and the reel with the tape guide.

52. The assembly as claimed in claim 51, wherein the tape guide is provided with a holder enabling direct attachment of the tape guide onto the component tape reel.